

PROJECT NARRATIVE



System Description

Owner: Dominion Generation

Plant Name: Bath County Pumped Storage Facility

Product Type: Ovation

Unit Size (MW): 6 x 407 MW Units for a total capacity of 2,442 MWs

Pumping Capacity: 13.5 million gallons (852 cubic meters/second) per minute

Location: Bath County, Virginia

Application: HPSP (Hydro Pump Storage Plant Control)

Replacement: ABB/Bailey INFI 90 Control System

Contract Initiation: Oct. 2003

Targeted Completion: Oct. 2009

Major System Components:

- 1 Redundant Ovation Network
- 8 Redundant Controllers with local and remote I/O
- 8 Operator Workstations
- 1 Engineer Workstation with dual 20" flat screen monitors
- 1 Historian
- PI Interface
- Datalinks to governors and excitation systems

DCS I/O Points:

3,700 datalink points

4,700 hardwired points



Photo courtesy of www.dom.com

DOMINION GENERATION

Bath County Pumped Storage Facility Located in Bath County, Virginia

Dominion is one of the nation's largest producers and transporters of energy, with a portfolio of approximately 28,200 megawatts of generation; 11,000 miles of natural gas transmission, gathering, and storage pipeline; and 6,300 miles of electric transmission lines. Dominion's generation portfolio consists of coal-fired, natural gas-fired, oil-fired, nuclear, biomass, wind, and hydroelectric facilities.

Dominion's Bath County Pumped Storage Facility is hidden deep within the Allegheny Mountains of Virginia. The station consists of two large reservoirs — one 1,262 feet (385 meters) higher than the other, a massive powerhouse and several huge tunnels that connect them.

When demand is low, water is pumped from the lower reservoir to the upper one. When demand is high, valves permit water to run through the tunnels to the lower reservoir at a rate as high as 13.5 million gallons (852 cubic meters/second) per minute, turning six 407-megawatt turbine generators. The water level in the 265-acre upper reservoir can fluctuate as much as 106 feet when the unit is operated.

In 2003, Dominion selected Emerson Process Management's Ovation™ expert control system to replace the existing ABB/Bailey INFI 90 load control system. Ovation performs data acquisition and direct control and monitoring of the balance of plant processes, with interfaces to the governor and excitation systems.

The Ovation system for Bath County consists of a redundant network, eight redundant controllers, and eleven workstations for engineering, operations, historical functions, and interfacing to the plant's OSI PI system. In all, Ovation handles approximately 4,700 hardwired and 3,700 data linked I/O points.

Along with Ovation, Emerson also provided AMS predictive maintenance software and SureService™ customer support programs.